

Amendments to the Specification

Please amend the paragraph starting at page 8, line 5 and ending at line 18, as follows.

In Fig. 1A, reference ~~number~~ numeral 10 denotes a serial type ink jet printing apparatus and 100 represents a body of the apparatus. The apparatus body 100 has an internal construction of Fig. 2 and also has mounted at its front a front cover 101 that can be opened and closed. On a top surface of the front cover 101 is mounted an operation/display unit 106, which, as shown in Fig. 1B, has switches 107a, 107b for turning the apparatus power on or off and setting a variety of printing modes and a display 108 for indicating a state of the printing apparatus. Opening the front cover 101 can expose the interior of the apparatus body 100 as shown in Fig. 3A, allowing the print head and ink tank to be accessed for replacement.

The paragraphs starting at page 8, line 27 and ending at page 9, line 20 have been amended as follows.

Designated 201 is a carriage ~~201~~ movably supported on two parallel guide shafts 202, 203 installed in the apparatus body 100. On this carriage 201 is removably mounted a print head 303, on which an ink tank 204 is also removably mounted.

The carriage 201 is driven by a DC motor (not shown) to reciprocally move (main-scan) over a scan area including a print area in a main scan direction indicated by arrows Q1, Q2 (axial direction of the guide shafts 202, 203), during which time the print head 303 mounted on the carriage 201 ejects ink from its nozzles onto the print medium P situated immediately below to perform printing for one scan.

With one main scan completed, the print medium P is fed a predetermined distance in a subscan direction indicated by an arrow R and waits for the next scan. ~~These~~ The main scan and subscan are alternately repeated until one page of printing is completed.

Now, referring to ~~Fig. 3~~, Figs. 3A-3D, a construction and a procedure for mounting and removing the print head 303 and the ink tank 204 will be explained.

The paragraph starting at page 10, line 24 and ending at page 11, line 14 has been amended as follows.

Fig. 4A shows the ink tanks 204a, 204b mounted on the print head 303. One of the ink tanks (color ink tank) 204a is correctly mounted on the print head 303 whereas the other ink tank (black ink tank) 204b is not yet fully mounted. When the ink tank 204a is correctly mounted on the print head 303, a back portion of the ink tank 204a is held almost vertically along a back of the print head 303 so that a front face of the ink tank 204a rests behind a front of sidewall portions 303a of the print head 303. In this state the

ink tank 204a has its engagement projection 204a1 fit in an engagement recess 303b formed in a top surface of the print head 303 and is thus firmly held without a play. When the properly mounted ink tank 204a is to be removed from the print head 303, an upper part of the ink tank 204a is pulled forward to disengage the engagement projection 204a1 from the engagement recess 303b.

The paragraph starting at page 13, line 21 and ending at page 14, line 2 has been amended as follows.

Should the carriage 201 be driven with such a protective material 507 left in its path, the carriage 201 or the print head 303 interferes with the obstacle 507 and its movable range is limited to a shorter range than when the obstacle 507 is not present. The movable range of the carriage 201 is similarly reduced also when ~~other~~ obstacles other than the protective material 507 exist in the paths of the carriage 201 and print head 303.

The paragraph starting at page 15, line 19 and ending at page 16, line 3 has been amended as follows.

Next, referring to Figs. 7A-7D, Fig. 8 and Fig. 9, a method of checking a mounting state of the ink tanks 204 and a presence or absence of an obstacle in the path of the carriage will be described. ~~Fig. 7 is an~~ Figs. 7A-7D are explanatory plan ~~view~~ views showing a positional relation between parts in the carriage path. Fig. 8 and Fig. 9 are flow charts showing detection sequences to check for an improper mounting of ink tanks and a presence or absence of an obstacle in the carriage path, Fig. 8 representing processing to be executed when a power is turned on and Fig. 9 representing processing to be executed when the front cover is closed.

The paragraph starting at page 18, line 13 and ending at page 19, line 26 has been amended as follows.

When the front cover 101 is closed, there are two possible states. ~~On~~ One state is that the reference position of the carriage 201 is already correctly determined during the power-ON processing, and the other state is that the reference position ~~have~~ has failed to be correctly determined during the power-ON processing (reference position is not yet determined). If the carriage position is not determined correctly immediately after the

power is turned on, the absolute position of the carriage 201 is still unknown. Thus, if a check on a reference position of the printing apparatus (step S901) finds that the reference position is not yet determined, the front cover closing processing executes the reference position determination processing to determine the reference position. As in the power-ON processing described above, the carriage 201 is moved in the backward direction Q2 toward the reference position (indicated at a in Figs. 7A-7D) and a position at which the carriage is blocked and stopped by some member is taken temporarily as a preliminary reference position (step S908). Next, the carriage 201 is moved in the forward direction Q1 toward the maximum movable position (indicated at b in Figs. 7A-7D) at the other end of the path on a (non-reference) side opposite the reference position a. When the carriage abuts against and is stopped by some member, a distance from this position to the preliminary reference position is determined (step S909). This is done by the CPU 602 counting the number of pulses received from the carriage position detection means. Then, it is checked whether the travel range or the distance traveled agrees with the preset maximum movable range (step S910). If the distance traveled is shorter than the maximum movable range, the processing moves to step S904 where it stops the carriage drive motor in the mechanical unit 605 through the mechanical control unit 604 (step S904). If the distance traveled agrees with the maximum movable range, the processing moves to step S911 to continue the predetermined front cover closing processing.

The paragraphs starting at page 23, line 15 and ending at page 24, line 3 have been amended as follows.

It is noted, however, that the present invention is not limited to a particular configuration of an ink ejection energy generation means in the print head but can also be applied to ink jet printing apparatus with print heads that use ~~other~~ ejection energy generation means other than the electrothermal transducers, such as ones having piezoelectric devices.

The present invention has been described in detail with respect to preferred embodiments, and it will now be apparent from the foregoing to those skilled in the art that changes and modifications may be made without departing from the invention in its broader ~~aspect~~ aspects, and it is the intention, therefore, ~~in that~~ the ~~apparent~~ appended claims ~~to~~ cover all such changes and modifications as fall within the true spirit of the invention.